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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/748,893

12/30/2003

David L. Myers

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EXAMINER

PADGETT, MARIANNE L

ART UNIT

PAPER NUMBER

1762

MAIL DATE

DELIVERY MODE

07/06/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/748,893	MYERS, DAVID L.	
	Examiner	Art Unit	
	Marianne L. Padgett	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/30/2003 & 5/24/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 17-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>5/25/04</u> . | 6) <input type="checkbox"/> Other: _____ |

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1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-16, drawn to a multistep method of modifying a polymeric surface, classified in class 427, subclass 538.
 - II. Claims 17-21, drawn to a polymeric surface with the graft polymerized coating, classified in class 428, subclass 411.1+.

2. The inventions are independent or distinct, each from the other because:

Inventions group I and group II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the resultant structure from the process of claim 1 can be made by many techniques, as it is merely an organic substrate having to polymeric layer thereon, where the various activation steps provide no specific structure that would differentiate from structures that were formed without using two types of activation steps, as materials are totally generic.

3. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art due to their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

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Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Robert Ambrose on 4/4/2007 a provisional election was made with traverse to prosecute the invention of group I, method claims 1-16. Affirmation of this election must be made by applicant in replying to this Office action. Claims 17-21 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-12 & 14-15 are rejected under 35 U.S.C. 102(e) as being anticipated by the Yahiaoui et al. (6,613,703 B1).

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yahiaoui et al. (703).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection

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under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Yahiaoui et al. teach corona treating thermoplastic nonwoven web substrates, inclusive of polyolefins (polyethylene, or polypropylene, or copolymers therewith) or copolymers inclusive of polyetheresters. The corona of treatment is taught to be known in the art, and to oxidize the web to form polar groups on reactive sites, thus making the web more receptive to aqueous chemical solutions, which are applied thereafter, comprise a cyclodextrin compound & may have additives, such as acrylic acid &/or polyacrylic acid, which during irradiation graft polymerize on to the nonwoven web polymer. The radiation treatment exemplified throughout the patent is electron beam (EB) irradiation, and no photoinitiator is taught to be used therewith, nor is there a photoinitiator in the example (not that one would expect one, since it is not a photo process), however alternative radiation sources are given as gamma radiation, UV radiation &/or x-ray radiation, where it is further taught "The use of radiation to facilitate chemical reactions is preferred over chemical catalysis. Chemical catalysis may leave by-products which break down during subsequent use of the cyclodextrin-modified water-permeable layer material" (col. 7, lines 33-39). While no exemplary composition when employing the taught UV radiation source is given, this teaching against the use of "chemical catalysts" is considered to be a teaching against the use of photoinitiators, as they may be considered a form of catalysts, thus equivalent to the teaching to use photoinitiator free compositions when curing with UV. In Yahiaoui et al., see the abstract; figure 1; col. 2, lines 25-40; col. 3, lines 40-52+; col. 6, lines 2-47 & 63-65; col. 7, lines 8-43 & 61-64; col. 8, lines 18-25, 44-56 & 66-col. 9, lines 30; plus examples in col. 10.

The patent does not discuss the use of reduced oxygen atmosphere for the limitation of subjecting to activation energy, however the exemplary detailed process description is directed to EB irradiation, which generally is unaffected by the presence of oxygen, however it is old and well-known to those of

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ordinary skill in the art that UV initiated polymerization & crosslinking is commonly inhibited by the presence of oxygen for many compositions, hence for the taught option of UV as an alternative for EB, it would've been obvious to one of ordinary skill in the art to utilize a technique that eliminates or greatly reduces the presence of oxygen, which may inhibit its intended polymerization/crosslinking effects, clearly dependent on the particular compositions employed, since while many photocurable compositions are inhibited by oxygen, not all are. Note also at present, the claim limitation of applying activation energy performed under a reduced oxygen condition, is directed to generic energy initiating generic graft polymerization on generic polymeric materials, such that the presence or absence of oxygen has little meaning, i.e. lacks context to give it any significance.

7. Claims 1-8, 10-14 & 16 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Anders et al. (5,871,823).

Anders et al. teach hydrophilic coatings on polymeric substrates, such as polyolefins (polyethylene, polypropylene, etc.), polyesters, etc. in the form of film, prepared by subjecting at least one hydrophilic vinyl monomer to radiation induced graft polymerization on an activated substrate surface (abstract; summary; col. 4, lines 22-47; examples especially 4 & 7-11/table 2; & claims 1 & 5). The polymeric substrate may be activated by any of a variety of techniques, inclusive of treatment with UV radiation, treatment with plasma, **corona discharge**, electron beams or gamma rays, or flaming the surface, all of which read on exposing the surface to energy, and are employed to functionalize the surface, thus "to form surface radical forming groups" thereon (col. 1, lines 51-65+; col. 5, lines 54-col. 6, lines 49, especially 1-9 & 28-31; col. 7, lines 5-10 & examples). The activated surface is treated with aqueous solution, containing hydrophilic vinyl monomer(s), which may be inclusive of unsaturated carboxylic acid, such as acrylic acid or methacrylic acid, or derivatives thereof where hydrophilic groups may include phosphonic acid and phosphinic acid groups or be functionalize polyalkylene glycols, such as triethylene glycol diacrylate. The various taught monomers can be used individually or as a mixture

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adapted for particular intended use, and it is particularly taught that the "solutions do not have to comprise any of the known polymerization initiators or other additives known for polymerization processes" (col. 4, lines 47 (esp. 55 & 63)-col. 5, line 53, especially 6-10, 19, 33, 36, 44-46 & 50-53). The solutions are coated on the activated surface, and after or during evaporation of the solvent, or while immersed in solution (therefore reduced oxygen), polymerization is induced by application of UV (col. 7, lines 11-47+ & examples).

In claim 16, the specifically claimed further addition of cross-linking agents diethylene glycol diacrylates or diethylene glycol dimethacrylate are considered encompassed by the specific teachings of mixtures & functionalize polyalkylene glycols of which they are a part as suggested by the specific example thereof, or alternately see below for discussion of obviousness.

9. Claims 8 & 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anders et al. (832), optionally considering for claims 8 & 15, Simonetti (6,451,386 B1) or Kanazawa (6,830,782 B2).

While Anders et al. teach a wide variety of polymeric substrate types & specific species useful for the process, and disclose that the process is intended to be used for industrial, medical & bioengineering purposes (col. 1, lines 7-49; col. 4, lines 9-25+ & col. 7, lines 60-65), they do not specifically discuss shape, other than mentioning in the examples that the particular substrate materials were films, however a nonwoven web may be considered a type of film, and it is an old and well-known description of many types of polyolefinic materials employed in the taught known uses mentioned in the specification, such as for membranes & various biological applications, hence it would've been obvious to one of ordinary skill in the art to employ this conventional substrate structure in its conventional usages after applying and Anders et al.'s technique for making the surface of hydrophilic, as it would have been expected to advantageously provide the desired hydrophilicity on a surface/substrate known to require such. Optionally any of the secondary references, which are directed to analogous processes of hydrophilizing

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polymer surfaces teach substrates of the same materials that are also teaching claim structures of nonwoven polyolefinic material, thus demonstrating the above asserted obviousness & known use (Simonetti (abstract; col. 1, lines 7-39; summary; col. 4, lines 27-53+; col. 12, lines 42-55) or Kanazawa (abstract; col. 1, line 7-31, especially 17; col. 3, lines 53-col. 4, lines 68+, especially 56-63; col. 5, lines 23-col. 7, line 37)).

With respect to the specific cross-linking agents of claim 16, it was noted above that Anders et al. specifically teach mixtures & specifically teach compositions may include functionalize polyalkylene glycols, such as triethylene glycol diacrylate, or may include phosphonic acid and phosphinic acid hydrophilic groups, thus suggesting the desirability of phosphate groups as claimed or more particularly specifically relating to the claimed compounds of diethylene glycol diacrylates or diethylene glycol dimethacrylate, which appear to the examiner to be specific sub-species at the generically taught species of functionalize polyalkylene glycols, thus part of a small grouping specifically suggested, hence obvious to one of ordinary skill in the art as an obvious alternative to the specifically suggested member of the larger group.

10. Claims 1-11, 13 & 15 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Bolte et al. (4990364).

Bolte et al. teach coating planar or formed body plastic substrates, inclusive of polyethylene, polypropylene, etc., which when nonpolar (i.e. taught polyolefins) are surface treated by flame or corona discharge to improve the wettability & adhesion (abstract; column 1, lines 7-21; column 17, lines 18-24, 32-35 & 54-column 18, line 7; col. 20, lines 46-57 & 66-column 21, line 2+), which the examiner notes inherently forms the claimed surface groups. The intended uses & illustrations are noted to suggest film or sheet substrates, especially with the teaching of planar substrates, noting that they are not taught to be woven. The coatings that may be applied to such a treated surface include those described as a "solvent-free, low monomer polymerizable melt composition, which is a resin that in addition to its polymerizable

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polymer components, may also contain as taught a polymerizable oligomer, such as acrylic or methacrylic, where Bolte et al. particularly note that these oligomers have a residual monomer content (abstract; column 6, lines 36-59; col. 12, lines 16 [esp. lines 31-33 & 45-49]-col. 13, lines 68, especially lines 66-68), thus reading on applicant's "a fluid comprising at least one type of monomer". The taught polymerization or cross-linking of the melt composition is involves the free radical method, and may be done under inert gas and/or protective film conditions by either UV or electron radiation, where for the electron radiation is particularly taught that the curing or cross-linking take place without use of reaction in initiator's such as peroxides, photosensitizers, etc. (col. 21, lines 12-36 & 40-68+; claims 1, 5-6, 16-18), thus when EB is employed, as claimed the EB supplies the activation energy & the polymerization takes place "in the absence of added photoinitiator".

11. Other art also of interest includes: Kunz et al. (abstract; [0007], [0010-14], [0017-32+], especially [0024, 27-28]; [0047], [0092], [0098], [0100-101]+; [0117-121] [0158-161+]; example 1) teaching a process that includes the claim steps and may treat the deposited monomer with UV or EB, where the examples are all directed to UV & employ photoinitiator, and while EB polymerization would not require photoinitiators, reference never states that they are not employed therewith. De Voe et al. (5,863,847) is of interest for surface treating poor substrates to promote adhesion via corona, UV, flame or EB,, coating with a polymeric mixture that may be cured via UV or EB, but mentions containing photoinitiators. References cited by applicant of Galli et al. (5,411,994) & Choi (6,384,100 B1) are of interest for having many components of the present process, but not all, while the abstract to Umehara Yuichi (11120982 A) is of interest for subjecting nonwoven polymeric fabric to hydrophilic treatment by graft polymerizing acrylic acid via UV, beta ray (i.e., EB) or gamma ray, thus appears to have the potential for being equivalent to above applied references, but the abstract lacks detail & is redundant.

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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne L. Padgett whose telephone number is (571) 272-1425. The examiner can normally be reached on M-F from about 8:30 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks, can be reached at (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MLP/dictation software

6/(25, 29) /2007

7/2/2007

A handwritten signature in black ink, appearing to read 'Marianne Padgett', is written over a light blue grid background.

MARIANNE PADGETT
PRIMARY EXAMINER